Arctica 4804iq Series switch Installation Guide

Version 1.1

2016-04-20

contents

1. Introduction

1.1.Product Brief

Arctica 4804iq series switches are Celestica to launch the next generation of switching,With high reliability、multiple redundancy etc. It provides the cogent network sustentation for 1000Mb connecting to 10Gb scheme in data center and distripark network.

Arctica 4804iq figures as follow:

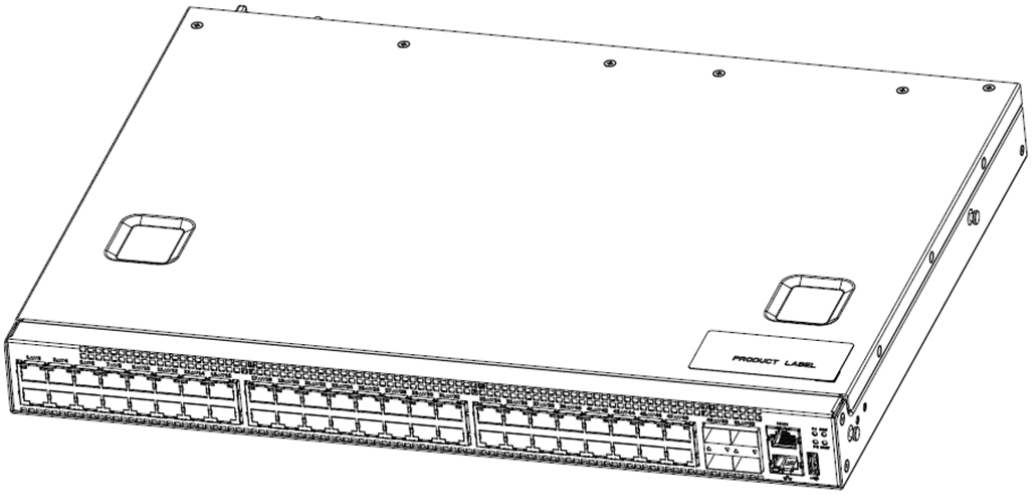

Figure 1-1 Arctica 4804iq Series Switch Figures

1.2.Description of Hardware

1.2.1.Front Panel

1. Front Panel Diagram

The front panel descriptions of Arctica 4804iq series switch in the following table.

Table 1-1 The front panel descriptions of Arctica 4804iq series switch

Type	RJ45 port	SFP+ port	10/100/1000Base-T ETHERNET port	Console port	USB2.0 interface
Arctica 4804iq	48	4	1	1	1

The front panel of Arctica 4804iq is shown below:

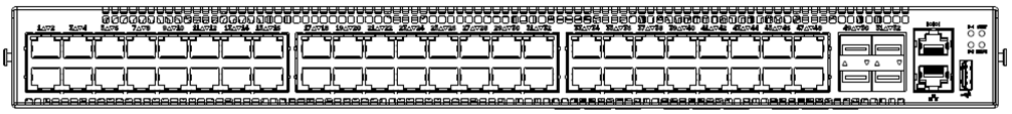

Figure 1-2 Front Panel of Arctica 4804iq

2. Console description

Arctica 4804iq series switches provide a RJ-45 serial console port, the user perform the local and telnet configuration through this port.

The console port supports asynchronous mode, set the data bit as 8, the stop bit as 1, the parity bit as none, the default baud rate as 115200bps.

1.2.2.Back Panel

The back panel of Arctica 4804iq includes 2 alternating current of 220V (it provides redundancy backups) and 3 fan rabbets.

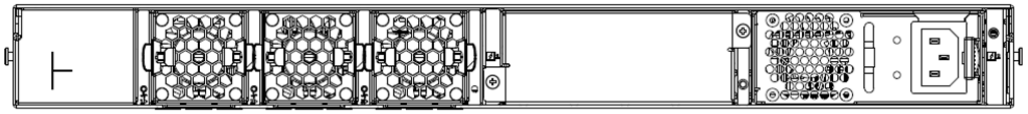

Fig 1-3 Back panel of Arctica 4804iq (standard configuration)

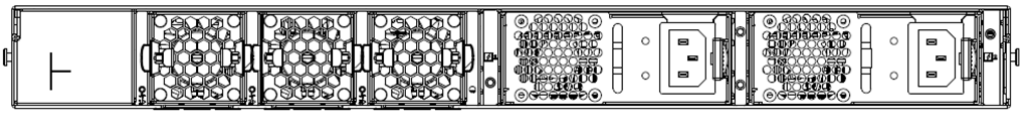

Fig 1-4 Back panel of Arctica 4804iq (full in)

1.3.Status LEDs

The indicator light on front panel of Arctica 4804iq has 48 RJ45 port indicator light, 4 SFP+ port indicator light, 2 power supply indicator light and system automatic diagnoses LED. They are shown below and described in the following table.

Table 1-2 The explanation of indicator light of Arctica 4804iq series switch

Indicator light	Panel sign	State	Meanings
Power supply indicator light	P-1 / P-2	Green light always on	Power supply module move normally.
		Amber light always on	Power make a mistake
		Put out	No power supply
System automatic diagnoses LED	STAT	Green light always on	System running normal.
		Green light winks	System booting
Work mode indicator light	MAST	Green light always on	Master mode
		Amber light always on	Slave mode

Table 1-3 The explanation of the port indicator light

Indicator light	Panel sign	State
ETHERNET port Link light (right)	Green	The port is under the connection state of 10M, 100M or 1000M.
	Green winks	The port is transmitting data
	Put out	No connection or fail to connect.
Indicator light of SFP+ port	Green	The port is under the connection state of 1G/10G.
	Green Wink	The port is transmitting data.
	Put out	No connection or fail to connect.
Indicator light of RJ45 port	Green	The port is under the connection state of 1G.
	Amber	The port is under the connection state of 10M/100M.
	Green Wink	The 1G port is transmitting data.
	Amber Winks	The 10M/100M port transmitting data.
	Put out	No connection or fail to connect.

1.4.Port Description

Arctica 4804iq provides 48 RJ45 ports and 4 10Gb SFP+ ports.

Each port description in the following:

Table 1-4 Arctica 4804iq series port description

Port mode	Spec
RJ-45 port	10/100/1000Mbps auto negotiation MDI/MDI-X cable mode auto negotiation 5 kinds of UTP: 100 m
SFP+	SFP-SX-L transceiver SFP-LX-L transceiver SFP-LX-20-L transceiver SFP-LX-40 transceiver SFP-LH-70-L transceiver SFP-LH-120-L transceiver SFPP-10G-SR transceiver SFPP-10G-LR transceiver SFPP-10G-ER transceiver SFPP-10G-ZR transceiver

Arctica 4804iq series swich provide 4 SFP+ ports and support the SFP+ cable(0.5M-7M). It enhances the flexibility of the network.

1.5.Power Supply Module

The following picture is the power supply module of Arctica 4804iq. The whole appearance sketch map is below:

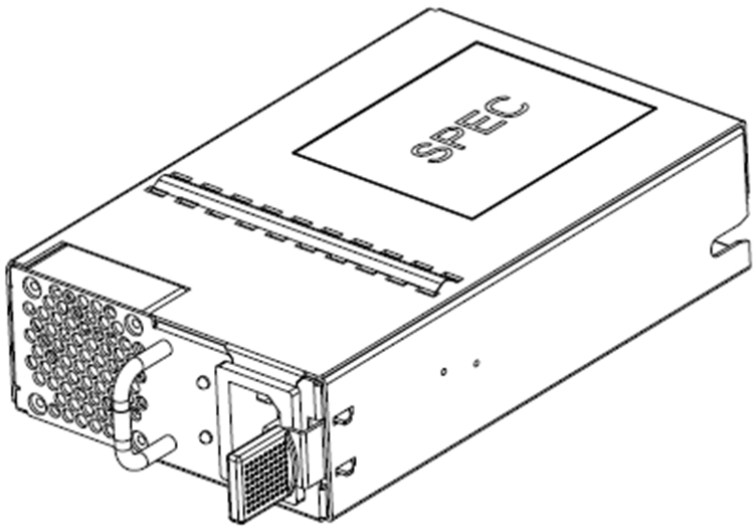

Fig 1-5 The sketch map of PSM

Arctica 4804iq series switch has one PSM in standard configuration. When two power supplies are at their position, it provides redundancy backups.

The maximum power is 200W, the import is 90VAC~264VAC/47HZ~63HZ and the export is 12V +/- 5%. There is a fan and a handle for sticking in or pulling out the module on the back of the power supply. The power supply module supports the hot plug.

1.6.Fan Module

Arctica 4804iq series fan module. The whole appearance sketch map is below:

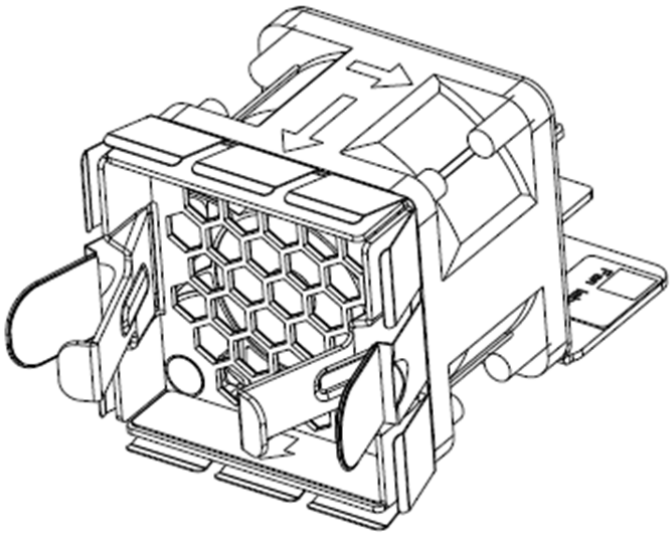

Fig 1-6 The sketch map of Fan module

Arctica 4804iq switch has 3 Fan modules in standard configuration. The rotate speed of fan adjusts itself adapt to the system temperature, The fan module supports the hot plug

1.7.System Specifications

Table 1-6 System Specifications of Arctica 4804iq series

Type **Attribute**	**Arctica 4804iq**
Dimension(W * H * D) (mm)	320×434×44
Weight	5.6 kg (standard: one power)

Fixed Port	48 RJ45 ports; 4 SFP+ ports
Management Port	1 RJ-45 serial console port 1 RJ_45 managemen Ethernet port
Power Input	90~264VAC(47~63Hz)
System Consumption	85.2W
Operating Temperature	0°C~45°C
Storage Temperature	-40°C~70°C
Relative Humidity	5%~85%, no condensate

2. Installation Notice

To ensure the proper operation of Arctica 4804iq series and your physical security, please read carefully the following installation guide.

2.1.Environmental Requirements

- The switch must be installed in a clean area. Otherwise, the switch may be damaged by electrostatic adherence.
- Maintain the temperature within 0 to 45 °C and the humidity within 5% to 85%, non-condensing.
- The switch must be put in a dry and cool place. Leave sufficient spacing around the switch for good air circulation.
- The switch must work in the range of AC power input: 90 ~ 264VAC (47/63Hz).
- The switch must be well grounded in order to avoid ESD damage and physical injury of people.
- The switch should avoid the sunlight perpendicular incidence. Keep the switch away from heat sources and strong electromagnetic interference sources.
- The switch must be mounted to a standard 19'' rack or placed on a clean level desktop.

2.1.1.Dust and Particles

Dust is harmful to the safe operation of Arctica 4804iq series. Dust can lead to electrostatic adherence, especially likely under low relative humidity, causing poor contact of metal connectors or contacts. Electrostatic adherence will result in not only reduced product lifespan, but also increased chance of communication failures. The recommended value for dust content and particle diameter in the site is shown below:

Max Diameter (μm)	0.5	1	3	5
Max Density (particles/m^3)	1.4×10^5	7×10^5	2.4×10^5	1.3×10^5

Table 2-1 Environmental Requirements: Dust

In addition, salt, acid and sulfide in the air are also harmful to the switch. Such harmful gases will aggravate metal corrosion and the aging of some parts. The site should avoid harmful gases, such as SO_2, H_2S, NO_2, NH_3 and Cl_2, etc. The table below details the threshold value.

Gas	Average (mg/m^3)	Max (mg/m^3)
SO_2	0.2	1.5
H_2S	0.006	0.03
NO_2	0.04	0.15
NH_3	0.05	0.15
Cl_2	0.01	0.3

Table 2-2 Environmental Requirements: Particles

2.1.2.Temperature and Humidity

Although the switch is designed to use 3 fans, the site should still maintain a desirable temperature and humidity. High-humidity conditions can cause electrical resistance degradation or even electric leakage, degradation of mechanical properties and corrosion of internal components. Extreme low relative humidity may cause the insulation spacer to contract, making the fastening screw insecure. Furthermore, in dry environments, static electricity is liable to be produced and cause harm to internal circuits. Temperature extremes can cause reduced reliability and premature aging of insulation materials, thus reducing the switch's working lifespan. In the hot summer, it is recommended to use air-conditioners to cool down the site. And the cold winter, it is recommenced to use heaters.

The recommended temperature and humidity are shown below:

Temperature:		Relative humidity	
Long term condition	Short term condition	Long term condition	Short term condition
15 ~ 30°C	0 ~ 45°C	40 ~ 65%	5 ~ 85%

Table 2-3 Environmental Requirements: Temperature and Humidity

Caution!

A sample of ambient temperature and humidity should be taken at 1.5m above the floor and 0.4m in front of the switch rack, with no protective panel covering the front and rear of the rack. Short term working conditions refer to a maximum of 48 hours of

continued operation and an annual cumulative total of less than 15 days. Formidable operation conditions refers to the ambient temperature and relative humidity value that may occur during an air-conditioning system failure, and normal operation conditions should be recovered within 5 hours.

2.1.3.Power Supply

Before powering on the power supply, please check the power input to ensure proper grounding of the power supply system. The input source for the switch should be reliable and secure; a voltage adaptor can be used if necessary. The building's circuit protection system should include in the circuit a fuse or circuit-breaker of no greater than 240 V, 5A. It is recommended to use a UPS for more reliable power supplying. .

Caution!

1. Improper power supply system grounding, extreme fluctuation of the input source, and transients (or spikes) can result in larger error rate, or even hardware damage!

2. Disconnect power supply cords before servicing!

2.1.4.Preventing Electrostatic Discharge Damage

Static electric discharges can cause damage to internal circuits, even the entire switch. Follow these guidelines for avoiding ESD damage:

- Ensure proper earth grounding of the device;
- Perform regular cleaning to reduce dust;
- Maintain proper temperature and humidity;
- Always wear an ESD wrist strap and antistatic uniform when in contact with circuit boards.

2.1.5.Anti-interference

All sources of interference, whether from the device/system itself or the outside environment, will affect operations in various ways, such as capacitive coupling, inductive coupling, electromagnetic radiation, common impedance (including the grounding system) and cables/lines (power cables, signal lines, and output lines). The following should be noted:

- Precautions should be taken to prevent power source interruptions;
- Provide the system with a dedicated grounding, rather than sharing the grounding with the electronic equipment or lightning protection devices;
- Keep away from high power radio transmitters, radar transmitters, and high frequency strong circuit devices;

- Provide electromagnetic shielding if necessary.

2.1.6.Rack Configuration

The dimensions of the Arctica 4804iq series are designed to be mounted on a standard 19'' rack, please ensure good ventilation for the rack.

- Every device in the rack will generate heat during operation, therefore vent and fans must be provided for an enclosed rack, and devices should not be stacked closely.
- When mounting devices in an open rack, care should be taken to prevent the rack frame from obstructing the switch ventilation openings. Be sure to check the positioning of the switch after installation to avoid the aforementioned.

Caution !

If a standard 19'' rack is not available, the Arctica 4804iq series can be placed on a clean level desktop, leave a clearance of 100mm around the switch for ventilation, and do not place anything on top of the switch.

2.2.Installation Notice

- Read through the installation instruction carefully before operating on the system. Make sure the installation materials and tools are prepared. And make sure the installation site is well prepared.
- During the installation, users must use the brackets and screws provided in the accessory kit. Users should use the proper tools to perform the installation. Users should always wear antistatic uniform and ESD wrist straps. Users should use standard cables and connecters.
- After the installation, users should clean the site. Before powering on the switch, users should ensure the switch is well grounded. Users should maintain the switch regularly to extend the lifespan of the switch.
- Statement indicating that a readily accessible disconnect device shall be incorporated in the building installation wiring.

2.3.Security Warnings

- When using SFP transceiver, do not stare directly at the fiber bore when the switch is in operation. Otherwise the laser may hurt your eyes.
- Do not attempt to conduct the operations which can damage the switch or which can cause physical injury.
- Do not install, move or disclose the switch and its modules when the switch is in operation.
- Do not open the switch shell.
- Do not drop metals into the switch. It can cause short-circuit.
- Do not touch the power plug and power socket.
- Do not place the tinder near the switch.

- Do not configure the switch alone in a dangerous situation,
- Use standard power sockets which have overload and leakage protection.
- Inspect and maintain the site and the switch regularly.
- Have the emergence power switch on the site. In case of emergence, switch off the power immediately.

Caution!

Potential risk include: Electric leakage, Power supply arcing, Power line breakage, Imperfect earth, Overload circuit and Electrical short circuit. If electric shock, fire, electrical short circuit occurs, please cut off the electricity supply and alarm rapidly. Rescue the injured person in the contingency under inherently safe, give the injured person proper first aid treatment according to the injury state, and seek help from the Medical Emergency using various ways.

3. Device Installation

3.1.Installation Preparation

3.1.1.Verify the Package Contents

Please unpack the shipping package and verify carefully the contents inside.

3.1.2.Required Tools and Utilities

The required tools and utilities are shown below:

- Cross screwdrivers
- Flat-blade screwdriver
- ESD wrist strap
- Antistatic uniform

Caution!

Users should prepare the required tools and utilities by themselves.

3.2.Device Installation

3.2.1.Installing the Switch

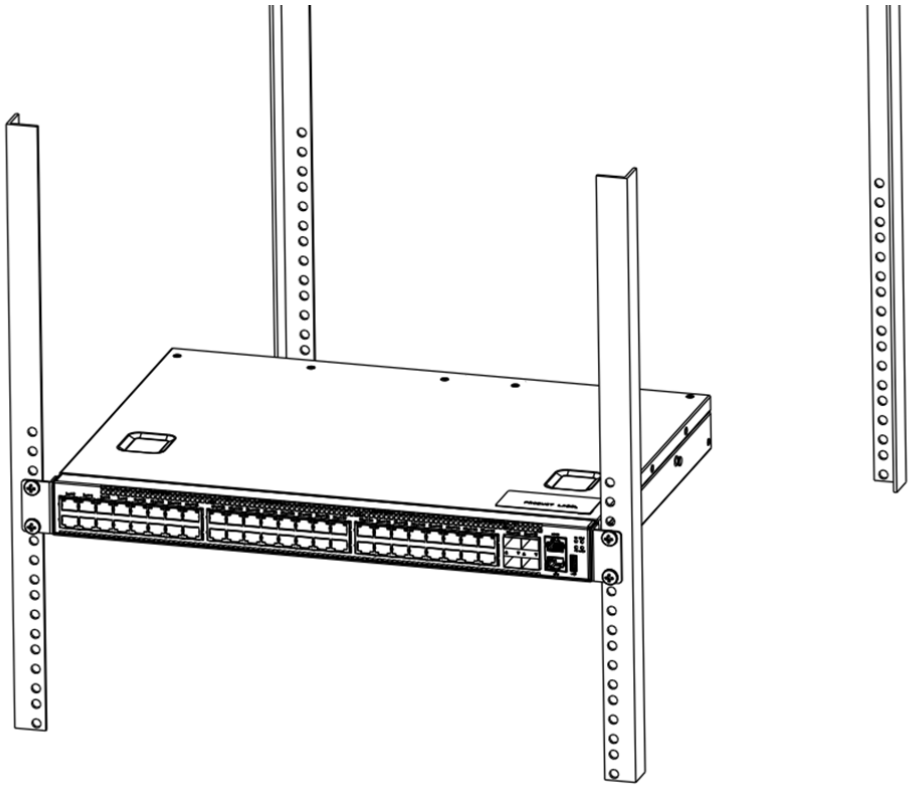

Figure 3-1 Arctica 4804iq series switch install sketch map on the rack using stock

Please mount Arctica 4804iq series on the 19’’ rack as below:

1. Attach the 2 brackets on the Arctica 4804iq series with screws provided in the accessory kit.
2. Put the machine on the stock of the rack when installing because the machine is quite heavy.
3. Put the bracket-mounted switch smoothly into a standard 19’’ rack. Fasten the Arctica 4804iq series to the rack with the screws provided. Leave enough space around the switch for good air circulation.

Caution!

Do not place anything on top of the switch. Do not block the blowholes on the switch to ensure the proper operation of the switch.

3.2.2.Installing the Power Supply Module

Arctica 4804iq switch supports 2 power supplies (Has One power supply in standard configuration).

One power supply module Installing as below:

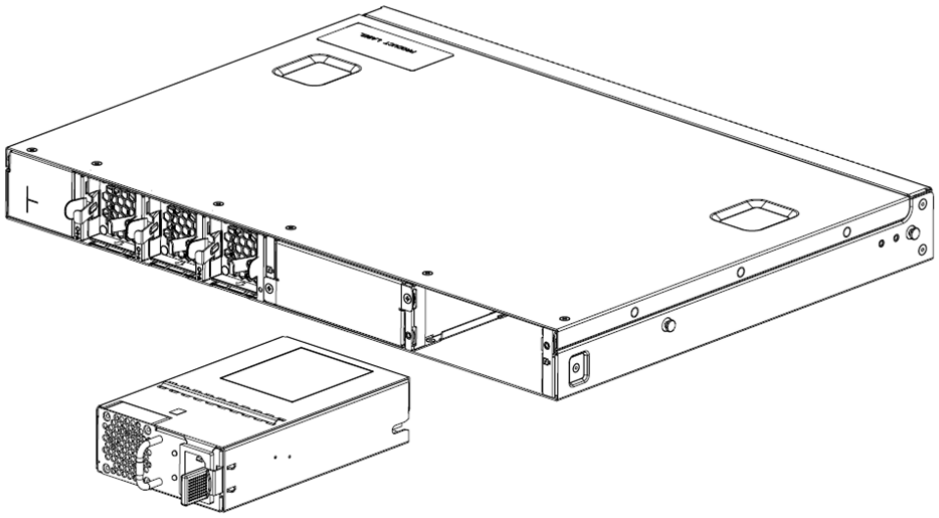

Figure 3-2 The figure of Arctica 4804iq switch one power supply installing

Please install the one power supply module according to the following approach:

1. Take out the power supply module from the little packing box.
2. The golden finger is entad and aim at the power supply rabbet of the machine to insert to the end downwards. You can hear the lock sound of “click”.
3. Force the board on the side of AC cable bore to the direction of fan when taking out the power supply module. And draw the power supply forth.

Two power supply module installing as below:

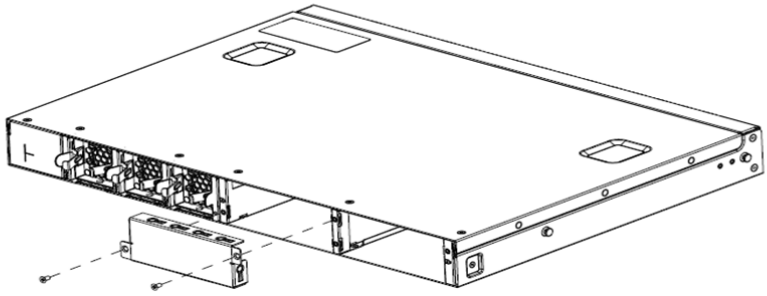

Figure 3-3 the figure of Arctica 4804iq switch remove PSU COVER

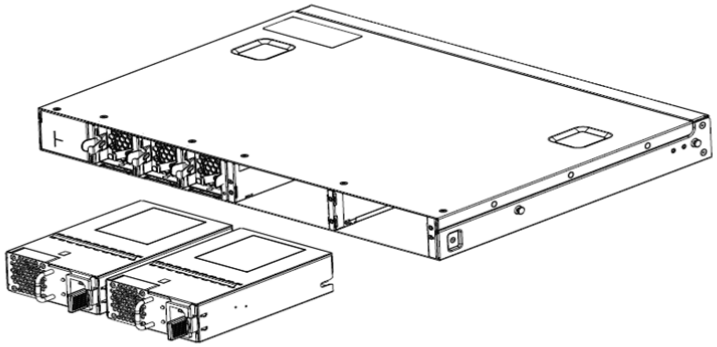

Figure 3-4 the figure of Arctica 4804iq switch two power supply installing

Please install the two power supply module according to the following approach:

1. Use a screwdriver to remove the two M3 screws, take off PSU COVER
2. The two power supply module respectively inserted into the chassis power socket, the inserted way same as install the one power.
3. Force the board on the side of AC cable bore to the direction of fan when taking out the power supply module. And draw the power supply forth.

3.2.3.Installing the Fan

Arctica 4804iq switch has 3 fans in standard configuration.

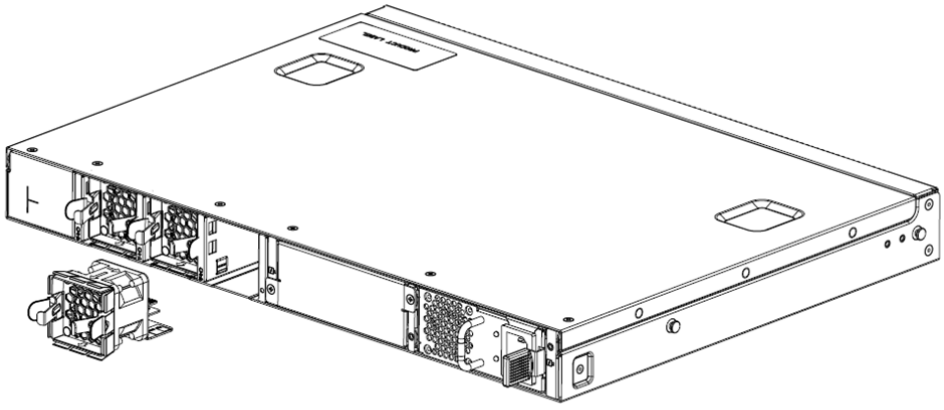

Figure 3-5 The figure of Arctica 4804iq series switch installing the fan

Please install the fan module according to the following approach:

1. The golden finger is inward and adown and aim at the fan rabbet of the back machine flatly to the end. You can hear the lock sound of “click”.
2. Pinch the sheet metal inward and draw the fan module forth when taking out it.

Caution!

The sheet metal edge of fan is thin, please watch your fingers when pinch, press, insert and pull it.

WARNING! - Hazardous moving parts. Keep away from moving fan blades.

3.2.4.Connecting Console

Arctica 4804iq series provide a serial console port.

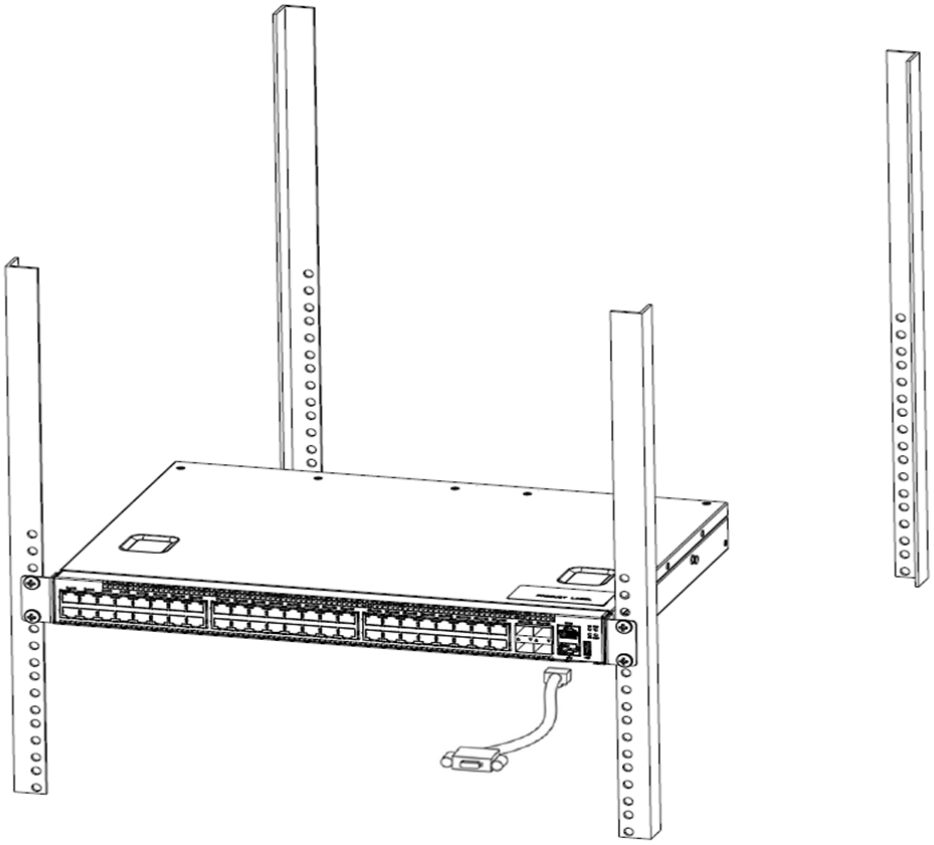

Figure 3-6 Connecting Console to Arctica 4804iq series switch

The connection procedure is listed below:

1. Find the console cable provided in the accessory kit. Attach the console cable end to console port of the switch.
2. Connect the other side of the console cable to a character terminal (PC).
3. Power on the switch and the character terminal. Configure the switch through the character terminal.

3.2.5.SFP/SFP+ Transceiver Installation

Arctica 4804iq series provide 48 RJ45 transceiver slots and 4 SFP+ ports.

The procedure for installing the SFP+ transceiver is shown below:

Step 1: Put on a ESD wrist strap (or antistatic gloves)

Step 2: Insert the SFP+ transceiver to the guide rail inside the SFP+ port. Do not put the SFP+ transceiver up-side-down.

Step 3: Push the SFP+ transceiver along the guide rail gently until you feel the transceiver snap into place at the bottom of the SFP+ port.

Note: the SFP+ transceiver is hot swappable.

Caution!

Do not stare directly at the 2 fiber bore in the SFP transceiver when the switch is in operation, otherwise the laser may hurt your eyes.

3.2.6.Copper Cable/Fiber Cable Connection

Copper cables should be connected as below:

Step 1: Insert one end of the Ethernet cable to the RJ-45 Ethernet port in the switch copper port;

Step 2: Insert the other end of the Ethernet cable to the RJ-45 Ethernet port of other device;

Step 3: Check all status indicators for the corresponding ports; a lighted LED indicates that the link has been established, otherwise the link is not ready and the cable should be examined.

Caution!

Please verify the sign above the port to ensure using the right port. Connecting to wrong ports might damage the switch.

Fiber cables should be connected as below:

Step 1: Remove the protective plug from the SFP+ fiber transceiver bore; Remove the protective cap from one end of the fiber cable. Keep the fiber end clean and neat.

Step 2: Attach one end of the fiber cable to the SFP+ transceiver, and attach the other end to the transceiver of the corresponding devices. Note: The SFP+ transceiver's TX port should be connected to the RX port of the corresponding device, and vice versa.

Step 3: Check the fiber port status indicator, a lighted LED indicates that the link has been established; otherwise the link is not ready and should be examined.

Caution!

Please verify the sign above the port to ensure using the other ports. Connecting to wrong ports might damage the transceiver or the other ports. When connecting other devices through a fiber cable to the switch, the output power of the fiber cable must not exceed the maximum received power of the corresponding modules. Otherwise, it will damage the fiber transceiver. Do not stare at the fiber bore when the switch is in operation. That may hurt your eyes.

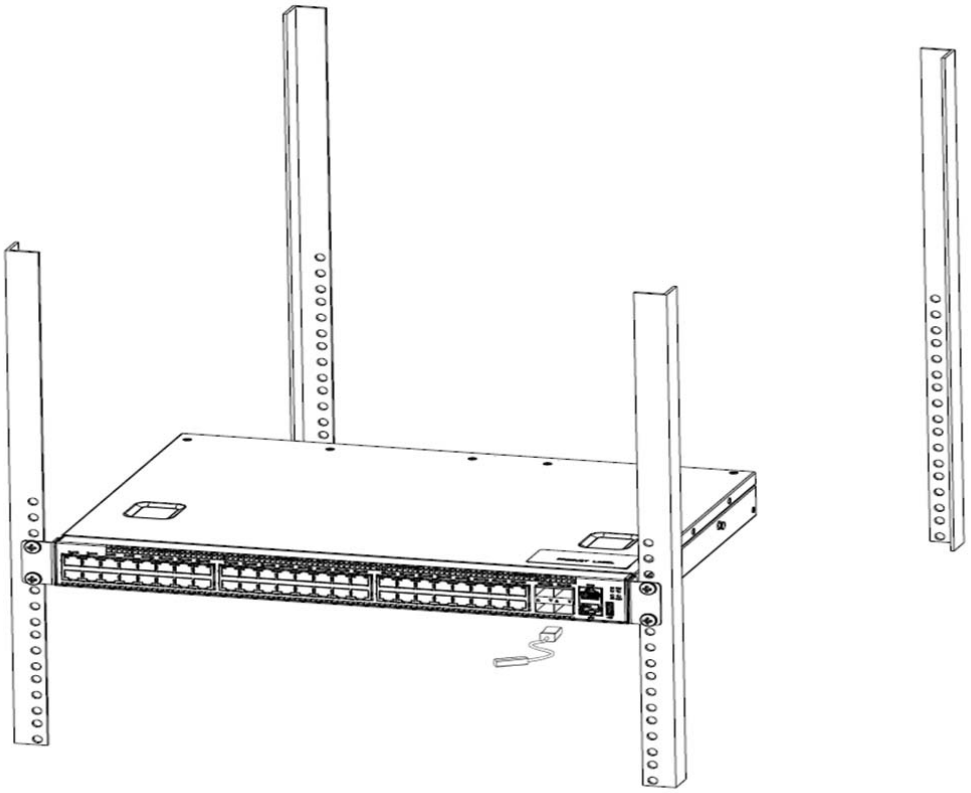

Figure 3-7 Connect the DAC cable to Arctica 4804iq series switch

The connection approach of DAC cable is below:

1. Connect the two side of DAC cable to SFP+ transceiver of Arctica 4804iq switch.

2. Check out the indicator light state of the light port. If LINK light is bright, it means the link is connection. If LINK light puts out, it means the lines have trouble and please check out the line connection.

3.2.7.AC Power Supply Connection

Arctica 4804iq series switch uses 220/110VAC power supply by default. Please read the power input specification for the detailed information.

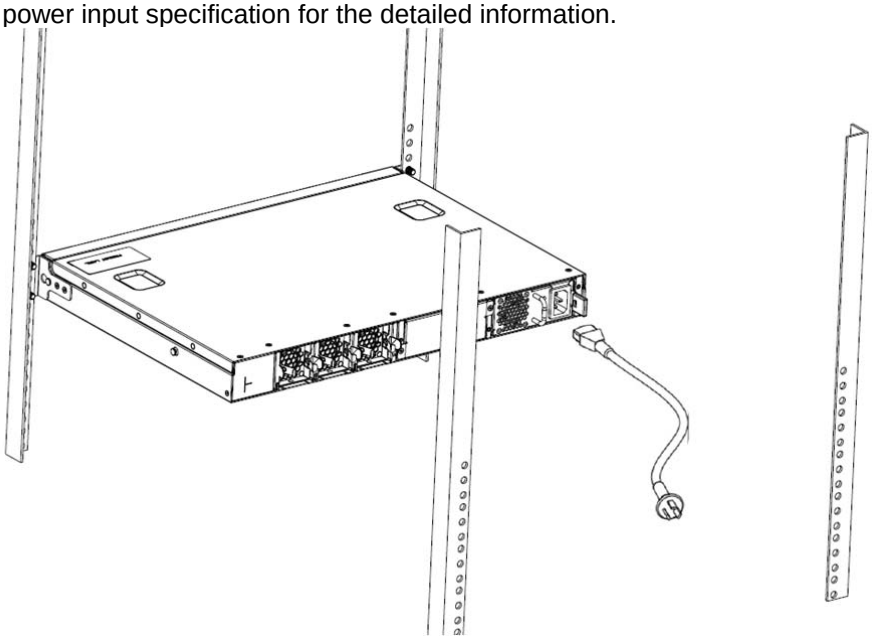

Figure 3-8 Connect the power supply cable to the Arctica 4804iq series switch

AC Power supply connection procedure is described as below:

1. Insert one end of the power cable provided in the accessory kit into power source socket, and the other end to the power socket (with overload and leakage protection).
2. Check the power status indicator in the front panel of the switch. The corresponding PWR indicator should light.series is self-adjustable for the input voltage. As soon as the input voltage is in the range printed on the switch surface, the switch can operate correctly.
3. When the switch is powered on, it executes self-test procedure and startups.

Caution!

The input voltage must be within the required range, otherwise the switch can be damaged or malfunction. Do not open the switch shell without permission. It can cause physical injury.

Disconnect all power supply cords before servicing.

3.2.8.Checking the Switch

- Whether the used power corresponds to the power of the sign.
- Whether the ground cable is connected.
- Whether the Console cable connect to power cable correctly.

- If there are cables at the outside, please ensure the cable is well connected with the lightning protection devices.